

19. ON A COLLECTION OF FISH FROM RIVER KOSI (BIHAR)

(With a text-figure)

INTRODUCTION

The river Kosi system which plays a vital role in the development of fisheries in Bihar and constitutes one of the main natural source of fish seed (spawn), much needed throughout the country for culture of fast growing fishes, has not so far been fully exploited. During the course of investigations in 1965 and 1966, to locate new fish seed sources in two *dhars* of river Kosi—the Kosi-khanua and the khagna, large number of young fishes were collected to ascertain the natural distribution of freshwater fishes. This paper deals with the topography and fish fauna of both the

dhars and a stretch of river Kosi extending from the confluence of the Kosi-khanua *dhar* to the origin of river khagna.

The river Kosi, one of the main tributaries of the river Ganga drains the southern slopes of the Himalayas between 26° N to 30° N latitude and 85° to 90° E longitude, is formed by the union of three important rivers—Sun-kosi, Arun and Tamur, taking their origin near Kathmandu, Tibet, and the north east hills of Kanchenjunga respectively. These three rivers join together at Tribeni to form Saptkosi which flows through a gorge and debouches into the plain near Chatra. Lower down Chatra, the Kosi (as it is called) flows for

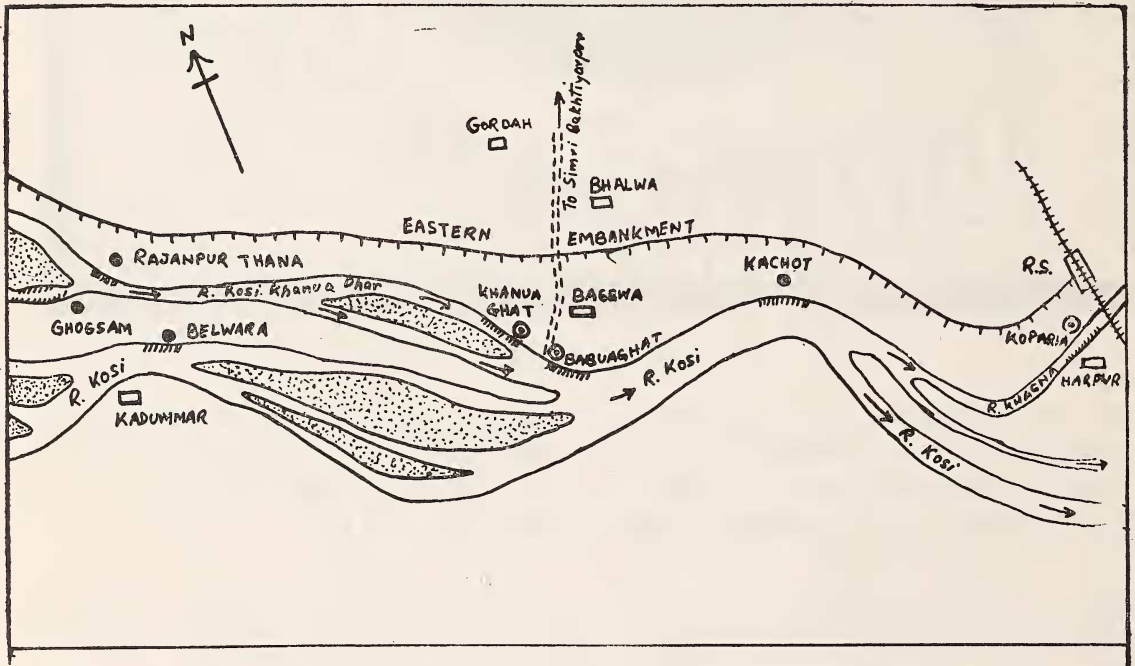


Fig. 1. Babuaghat stretch of Kosi khanua *dhar* and Koparia stretch of Khagna, showing sites prospected and centres investigated.

about 318 km in an alluvial plain to meet the river Ganga near Kursela. The river Kosi is well known for its profuse branching into many *dhars* and for changing its course. It may be mentioned that in the early part of the 18th century the Kosi flowed below the town of Purnea but it has gradually worked westwards across 120 km of the country as is evidenced by its deserted channels (Chhibber 1949).

Reports on fish collection from the Kosi river system are scanty and none from the Kosi-khanua and the Khagana. Menon (1949) reported 52 species of fish from the Kosi in Nepal territory and particularly from regions above and below the proposed dam site at Barakhshetra. Further, in 1954 and 1962 he described the fish fauna from the Kosi drainage of the eastern Himalayas and discussed zoogeographical significance of their distribution. David (1959) gave an account of fish seed collection centres from Kosi *dhars* near Supaul and suggested *dhars* as probable breeding grounds of major carps of India. DeWitt (1960) reported fishes from the Kosi system of Nepal. Menon (1962) gave a distributional list of all known species of fishes from the definite drainage systems in the Himalayas and recorded 69 species from the Kosi drainage. While describing distribution of the genus *Garra*, Menon (1964) recorded three species *Garra lamta*, *Garra gotyla* and *Garra annandalei* from this system.

During spawn prospecting investigations, in the Kosi-khauna at Babuaghat and the Khagna at Koparia, considerable number of juveniles of various species of fish were collected from spawn collection nets and further collections were made by operating cast nets. Babuaghat, which is situated on the eastern bank of Kosi-khauna *dhar* at about 3 km upstream of the confluence with the Kosi, lies in district

Saharsa about 12 km from the town of Simri Bakhtyarpur. Koparia, another main collection centre, is located on the eastern bank of the Khagna about 10 km downstream from Babuaghat (Fig. 1). The river Khagna which has its origin from main Kosi at Kachot village, remains a deserted channel for a greater part of the year and becomes filled with water from the Kosi only during monsoon.

SYSTEMATIC LIST

108 species of fishes belonging to 26 families have been reported from the Kosi drainage. Of these, 62 species marked with an asterisk (*) are recorded for the first time during the present investigation from the middle reaches of the Kosi system.

Family: CLUPEIDAE

- *1. *Gadusia chapra* (Hamilton)

Family: ENGRAULIDAE

- *2. *Setipinna phasa* (Hamilton)

Family: NOTOPTERIDAE

- *3. *Notopterus notopterus* (Pallas)

Family: CYPRINIDAE

- *4. *Chela laubuca* (Hamilton)
 5. *Oxygaster argentea* (Day)
 *6. *Oxygaster bacaila* (Hamilton)
 *7. *Oxygaster gora* (Hamilton)
 *8. *Oxygaster phulo* (Hamilton)
 *9. *Barilius barila* (Hamilton)
 10. *Barilius barna* (Hamilton)
 11. *Barilius bendelisis* (Hamilton)
 12. *Barilius shacra* (Hamilton)
 13. *Barilius vagra* (Hamilton)
 14. *Danio (Danio) aequipinnatus* (McClelland)
 15. *Danio (Danio) dangila* (Hamilton)
 16. *Danio (Danio) devario* (Hamilton)
 17. *Rasbora daniconius* (Hamilton)
 *18. *Amblypharyngodon mola* (Hamilton)
 19. *Aspidoparia jaya* (Hamilton)
 *20. *Aspidoparia morar* (Hamilton)
 21. *Chagunius chagunio* (Hamilton)
 *22. *Puntius chilinooides* (McClelland)
 23. *Puntius chola* (Hamilton)

24. *Puntius clavatus* (McClelland)
 *25. *Puntius conchoni* (Hamilton)
 26. *Puntius gelius* (Hamilton)
 *27. *Puntius sarana* (Hamilton)
 *28. *Puntius sophore* (Hamilton)
 *29. *Puntius ticto* (Hamilton)
 30. *Lissocheilus hexagonolepis* McClelland.
 31. *Tor puitora* (Hamilton)
 *32. *Catla catla* (Hamilton)
 *33. *Cirrhinus mrigala* (Hamilton)
 *34. *Cirrhinus reba* (Hamilton)
 *35. *Crossocheilus latius latius* (Hamilton)
 *36. *Garra annandalei* Hora.
 37. *Garra gotyla* Gray.
 38. *Garra lamta* (Hamilton)
 39. *Labeo angra* (Hamilton)
 40. *Labeo boga* (Hamilton)
 *41. *Labeo bata* (Hamilton)
 *42. *Labeo calbasu* (Hamilton)
 43. *Labeo dero* (Hamilton)
 *44. *Labeo gonius* (Hamilton)
 45. *Labeo pangusia* (Hamilton)
 *46. *Labeo rohita* (Hamilton)
 47. *Labeo sindensis* Day.
 *48. *Osteobrama cotio* (Hamilton)
 49. *Schizothorax annandalei* Regan.
 50. *Schizothorax richardsonii* (Gray)

Family: PSILORHYNCHIDAE

51. *Psilorhynchus pseudocheneis*
 Menon and Dutta

Family: HOMALOPTERIDAE

52. *Balitora brucei* Gray

Family: COBITIDAE

53. *Botia dayi* Hora.
 *54. *Botia histrionica* Blyth.
 *55. *Botia lohachata* Chaudhuri.
 56. *Lepidocephalichthys annandalei* Chaudhuri
 57. *Lepidocephalichthys guntea* (Hamilton)
 58. *Noemacheilus botia* (Hamilton)
 59. *Noemacheilus rupicola* (McClelland)
 60. *Noemacheilus rupicola inglisi* Hora
 61. *Noemacheilus savona* (Hamilton)
 62. *Noemacheilus scaturigina* (McClelland)
 63. *Acanthopthalmus pangia* (Hamilton)

Family: SILURIDAE

64. *Ompok bimaculatus* (Bloch)
 65. *Wallago attu* (Schneider)

Family: BAGRIDAE

66. *Mystus aor* (Hamilton)
 67. *Mystus bleekeri* (Day)
 68. *Mystus seenghala* (Sykes)
 69. *Mystus vittatus* (Bloch)
 70. *Rita rita* (Hamilton)
 71. *Leiocassis rama* (Hamilton)

Family: AMBLYCEPIDAE

72. *Amblyceps mangois* (Hamilton)

Family: SISORIDAE

73. *Bagarius bagarius* (Hamilton)
 74. *Gagata cenia* (Hamilton)
 75. *Gagata nangra* (Hamilton)
 76. *Gagata viridescens* (Hamilton)
 77. *Glyptothorax annandalei* Hora
 78. *Glyptothorax cavia* (Hamilton)
 79. *Glyptothorax horai* Shaw and Shebbeare
 80. *Glyptothorax telchitta* (Hamilton)
 *81. *Hara jerdoni* Day
 82. *Pseudocheneis sulcatus* (McClelland)

Family: SCHILBEIDAE

- *83. *Ailia coila* (Hamilton)
 84. *Clupisoma garua* (Hamilton)
 85. *Clupisoma montana* Hora.
 86. *Eutropiichthys vacha* (Hamilton)
 *87. *Pseudotropius atherinoides* (Bloch)

Family: HETEROPNEUSTIDAE

- *88. *Heteropneustes fossilis* (Bloch)

Family: CLARIIDAE

- *89. *Clarias batrachus* (Linnaeus)

Family: BELONIDAE

- *90. *Xenentodon cancila* (Hamilton)

Family: CYPRINODONTIDAE

- *91. *Aplocheilus panchax* (Hamilton)

Family: MUGILIDAE

- *92. *Rhinomugil corsula* (Hamilton)

Family: CHANNIDAE

- *93. *Channa marulius* (Hamilton)
 94. *Channa orientalis* Schneider
 *95. *Channa punctata* (Bloch)
 *96. *Channa striatus* (Bloch)

Family: AMPHIPNOIDAE

97. *Amphipnous cuchia* (Hamilton)

MISCELLANEOUS NOTES

- Family: AMBASSIDAE
*98. *Ambassis nama* (Hamilton)
*99. *Ambassis ranga* (Hamilton)
Family: NANDIDAE
*100. *Nandus nandus* (Hamilton)
Family: SCIAENIDAE
*101. *Pseudosciaena coitor* (Hamilton)
Family: ANABANTIDAE
*102. *Colisa fasciata* (Schneider)
103. *Colisa lalia* (Hamilton)
Family: GOBIIDAE
*104. *Glossogobius giuris* (Hamilton)
Family: MASTACEMBELIDAE
*105. *Macrornathus aculeatum* (Bloch)
*106. *Mastacembelus armatus* Lacépede
*107. *Mastacembelus pancalus* (Hamilton)
Family: TETRODONTIDAE
*108. *Tetrodon cutcutia* Hamilton.

GENERAL REMARKS

The fishes in the fauna of the Kosi river in the area investigated are widely distributed in India. Menon (1949), while discussing the Zoogeographical significance of the fish fauna of the Kosi system, stated that the occurrence of the most highly evolved torrential fishes like *Balitora Brucei*, *Pseudecheneis sulcatus*, *Glyptothorax annandalei*, *G. cavia*, *G. horai*, several species of *Noemacheilus* and *Lissocheilus hexagonolepis* in the Kosi, showed the close affinity with that of Tista and suggested that some of the earliest tributaries of the

Kosi might have drained the region of the Darjeeling Himalayas and are now probably feeder streams of the Tista river. In *dhars* such as Kosi-khanua and Khagna, where the current is not very fast and the river bed is muddy, the fishes like *Gagata*, *Garra*, *Noemacheilus* etc. which are hill stream, forms and generally inhabit a rocky substratum, have been collected in good number. This would suggest that these species can infact adapt themselves to the conditions obtained in the rivers of plain. Cultivable species such as *Catla catla*, *Cirrhinus mrigala*, *C. reba*, *Labeo bata*, *L. rohita*, *L. calbasu* and *L. gonius* were also collected in abundance from the Kosi-khanua *dhar* where an intensive collection of carp spawn is made every monsoon by commercial parties.

ACKNOWLEDGEMENTS

We are grateful to Dr. V. G. Jhingran, Director, Central Inland Fisheries Research Institute for guidance and Dr. A. V. Natarajan, for critically going through the manuscript and suggesting improvements, to Dr. A. G. K. Menon, Deputy Director, Zoological Survey of India for offering helpful suggestions in the preparation of the manuscript. Thanks are also due to Sri A. G. Prasad, Executive Engineer, Research Division, Kosi Project, Birpur for the help rendered, and to the Director of Fisheries, Govt. of Bihar for extending cooperation in the execution of work.

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20. SOUTHWARD MIGRATION, OF *EUPLOEA CORE CORE* CR.
AT KHANDALA, WESTERN GHATS

During a visit to Khandala, Kolaba District, Maharashtra on 4th October, 1979 we saw several Common Indian Crow butterflies in movement towards the south. They were flying in groups of 8 to 12 butterflies, at about a metre above the ground. However a few were seen at heights of 3 to 4 m, above the ground. The flight was slow. The weather was

cloudy with intermittent sunlight, and the wind was blowing from west to east. It was also noted that the butterflies were moving from lower to higher elevations. From 9.10 a.m. to 11.30 a.m. several hundred butterflies crossed the area under observation. Other Danaids like Common Tiger, Blue Tiger and Plain Tigers were also seen in the area.

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21. ATTRACTION OF BUTTERFLIES TO *CROTALARIA RETUSA*
(PAPILIONACEAE) AT KHANDALA, W. GHATS

Butterflies belonging to the Family Danaidae are known to be attracted to plants containing pyrrolizidine alkaloids (for references see Amladi 1975).¹ One such group of plant, is of the genus *Crotalaria*. On 4th October 1979 between 9.05 a.m. to 11.50 a.m., we saw several butterflies sitting on a bush. We collected a branch of this shrub which was later identified as "Shanarghandika" *Crotalaria re-*

tusa (Pailionaceae) also often referred to as Glory of Mahabaleshwar. After alighting on the leaves, the butterflies protruded their proboscis and rubbed it on the surface of the leaf. They were observed on withering leaves

¹ AMLADI, S. R. (1975): Danaid Butterflies attracted to *Heliotropium indicum* (Boraginaceae) an alkaloid containing Plant. *J. Bombay nat. Hist. Soc.* 72: 585-87.